05/24/05

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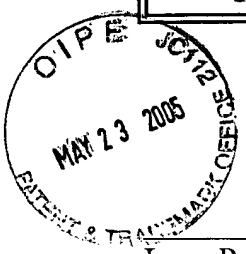
Dated: May 23, 2005 Signature: Joseph W. Ragusa (Joseph W. Ragusa)



Docket No.: K2291.0098/P098
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Masayoshi Kobayashi

Application No.: 09/770,017 Confirmation No.: 5189

Filed: January 25, 2001 Art Unit: 2172

For: DATA STRUCTURE FOR SEARCH Examiner: Hung Q. Pham

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on March 23, 2005, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2), and the required petition for extension of time for filing this brief and fees therefor, are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1206:

I.	Real Party In Interest
II	Related Appeals and Interferences
III.	Status of Claims
IV.	Status of Amendments

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

NEC Corporation

II. RELATED APPEALS, INTERFERENCES, AND JUDICIAL PROCEEDINGS

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 13 claims pending in application.

B. Current Status of Claims

1. Claims rejected: 7, 10, 14, 20, 22, 24-27 and 29.

C. Claims On Appeal

The claims on appeal are claims 7, 10, 14, 20, 22, 24-27 and 29.

IV. STATUS OF AMENDMENTS

Applicant filed an Amendment on July 14, 2004 in response to the non-final Office Action dated March 25, 2004. At that time, claims 6, 9, 12, 13, 16-19, 21 and 28 were cancelled. Claims 24-27 and 29 were amended at that time. No further amendments have been made subsequent to the July 14, 2004 Amendment.

Accordingly, the claims enclosed herein as Appendix A reflect the status of the claims on and before July 14, 2004.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a data search system and method that allows for more rapid and less memory intensive searches of stored items of data to be searched. In particular, the system and method to which the independent claims are directed replaces certain sub-trees of an "assumed tree structure," the assumed tree structure being a tree structure that has all the items of data to be searched, with equivalent tables. Once the assumed tree structure is formed, nodes are selected to identify candidate sub-tree structures for possible replacement by an equivalent table.

The sub-tree candidate for replacement by an equivalent table includes the currently selected node and any child nodes of the selected node. An equivalent table is formed, which includes, in table form, at least a portion of the items of data in the sub-tree. If one or more predetermined conditions are met, the equivalent table is used to replace the sub-tree to form the data structure.

The one or more predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) the

search performance of the data structure is not lower than that of the assumed tree structure. Page 6, line 17 through page 7, line17.

For example, as discussed in the specification in relation to, inter alia, Figures 4, 5 and 6, in the preferred embodiment, a search system is composed of a computer 11, an input device 21 such as a keyboard and a pointing device, and an output device 31 ouch as a monitor. The computer 11 implements a search section 12 by running a program thereon. A memory 13 is a main memory for a processor to store a data structure. Page 13, lines 9-14.

Referring to Figure 6, a data structure according to a first embodiment of the present invention is formed by an equivalent table and a quad tree used in the radix search, assuming the maximum bit length L=8 bits. In the example of Figure 6, the data structure as shown in Figure 6 is obtained by replacing the node N2 and its child nodes N3-N7, which together form a "sub-tree" of the "assumed tree structure, as those terms are used in the claims, and as shown in Figure 4, with the equivalent table N2_t. That is, a set of data represented by the node N2, that is, all the data included in a set of bit strings each starting with "00", are stored in the equivalent table N2_t. Page 13, line 15 through page 14, line 2.

A decision on whether the predetermined conditions (1) and (2) may be satisfied is made depending on whether the following equation is satisfied:

$N_D \leq N_L \times K$, when $K=Te/Tn$,

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table. If these conditions are met, the selected sub-tree is replaced with the equivalent table. Page 7, lines 18-26.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The Final Office Action dated September 23, 2004 ("the Final Office Action") rejected claims 7, 10, 14, 20, 22, 24-27 and 29 under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,404,513 to Powers et al. (hereinafter "Powers") in view of U.S. Patent No. 6,633,879 B1 to Jeffries. Claims 8, 11, 15 and 23, which are not under appeal, were objected to as being dependent upon a rejected base claim but were held to be allowable if rewritten in independent form.

VII. ARGUMENT

A. Group 1 – Claims 7, 10, 14, 20, 22, 24-27 and 29

Independent claim 24 includes the limitations of "d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure, wherein the predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure."

Independent claim 25 includes the limitations of "a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure, wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure;

and 2) search performance of the data structure is not lower than that of the assumed tree structure."

Independent claim 26 includes the limitations of "a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form, and determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure that is stored in the memory, wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure."

Independent claim 27 includes the limitations of "d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure, wherein the predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure."

Independent claim 29 includes the limitations of "replacing the selected sub-tree structure with the equivalent table to construct the data structure, wherein the sub-tree structure is selected so as to satisfy the following conditions a) and b): a) an amount of

memory required to store the data structure is smaller than that required to store the assumed tree structure; and b) search performance of the data structure is not lower than that of the assumed tree structure." These limitations of the independent claims are not disclosed at any cited portion of Powers.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

Both the teaching or suggestion to make the proposed combination, and the reasonable expectation of success, must be found in the prior art, not in Applicants disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See also MPEP §2143.

Further, the fact that references *can* be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so." *Id.* at 682. See also MPEP §2143.01.

As such, a prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). See MPEP §2141.02.

Each of the independent claims recites that a selected sub-tree structure within an assumed tree structure will be replaced with an equivalent table if both of the following predetermined conditions are determined to be satisfied:

1) an amount of memory required to store the data structure is smaller than that required to store the assumed tree structure; and

2) search performance of the data structure is not lower than that of the assumed tree structure.

Applicant respectfully submits that the Examiner has failed to identify art that teaches or suggests the claimed limitations of the independent claims.

First, the Examiner has failed to identify any teaching or suggestion in the prior art of determining whether to make a substitution of an equivalent table for a sub-tree in an assumed tree structure based upon criteria 2), i.e., that the search performance of the data structure after the substitution is not lower than that of the assumed tree structure. In particular, at page 6 of the Final Office Action, the Examiner appeared to concede that the primary reference Powers contains no teaching relating to determining whether to substitute an equivalent table for a sub-tree based on the search performance criteria of precondition 2). The Examiner took the position that Jeffries, at col. 9, lines 23-45, supplies this feature. Appellant respectfully disagrees.

The portion of Jeffries relied upon by the Examiner simply shows that it is possible to determine the speed of access for a tree by determining the maximum and minimum depths of the corresponding trees. Even when the cited disclosure of Jeffries is combined with Powers, there is no teaching of determining whether to substitute an equivalent table for a sub-tree based upon whether the search performance of the data structure after the

substitution is not lower than that of the assumed tree structure. For at least this reason, no prima facie case of obviousness has been set forth against independent claims.

Precondition 1) of all of the independent claims requires a determining step in which a substitution will only be made once it has been determined that an amount of memory required to store the data structure is smaller than that required to store the assumed tree structure. In the Final Office Action, the position was taken that Powers teaches determining whether to make a substitution of an equivalent table for a sub-tree in an assumed tree structure based upon this claimed criteria. Appellant respectfully disagrees.

In Powers, as discussed at col. 6, lines 3 through 16, if, in a summary tree, sub-trees in different locations of the summary tree represent the very same set of records, these sub-trees can be shared among the different parts of the tree, to avoid duplication. In the Final Office Action, the Examiner equated Powers' elimination of redundant sub-trees with the claimed replacement of sub-trees by equivalent tables, if predetermined conditions are met, in the independent claims. Appellant disagrees that the process of Powers is equivalent to the claimed process.

First, the technique discussed in Powers is not the same as the claimed technique. In Powers it is the *existence of redundancy* that determines whether the node-sharing technique is used, that is, whether or not a single summary node is used to replace two identical summary nodes. If redundancy is found, a single node is used instead of using the two identical nodes. Powers contains no teaching whatsoever that any determination is made as to whether the replacement should be made based upon whether, once the replacement is made, the structure formed thereby would reduce the amount of memory used by the tree.

In fact, Powers' replacement of redundant summary nodes by a single shared summary node *always* results in a reduction of memory utilization. It therefore would make no sense for Powers to include a step of determining *whether* an amount of memory required

to store the summary tree without the elimination of redundancy would be greater than the amount of memory required to store the summary tree if redundancy has been eliminated. Such a determination would be completely unnecessary, and would never be performed. Nor, for the same reason, would there be any motivation to modify Powers to add such an unnecessary step.

Thus, contrary to the position taken in the Final Office Action that reduction in memory utilization "could be used," as a condition for whether to perform the sharing technique of Powers, it is *not* used as a condition in the same way that condition 1) is used in the independent claims. Further, it would make no sense to modify Powers so as to use *a certainty* (memory reduction after the sharing of sub-trees is effected) as a condition for the substitution. Thus, there would have been no motivation whatsoever to have modified Powers to add steps of making a determination based on this criterion/condition.

On the other hand, in the invention defined by the independent claims, substitution of the sub-tree with an equivalent may or may not meet both of the conditions 1) and 2), for example on the basis of the formula discussed above. Thus, in the invention of the independent claims, it is not a certainty that the data structure formed with the substituted equivalent table would take up less memory and/or reduce search time in comparison to the assumed tree structure that includes the sub-tree. For at least this further reason, no prima facie case of obviousness has been set forth in the Office Action.

Moreover, regardless of the conditions used in determining *whether* a replacement is to be made, the actual replacement performed in Powers does not involve the replacement of a particular sub-tree of an assumed tree structure with an equivalent table, as is claimed. In Powers, if identical data is found in two or more locations, sub-trees *are shared.* On the other hand, in the claims of the present invention, a sub-tree of an assumed tree structure is *replaced*

with an equivalent table, if it is determined that predetermined conditions have been met. There is no teaching or suggestion of this feature in Powers.

In the Final Office Action, the Examiner took the position that in Powers, instead of using nodes for storing information, it would have been obvious to use an a two-dimensional table as an equivalent table for at least a portion of the tree. However, Powers provides no motivation to make such a substitution.

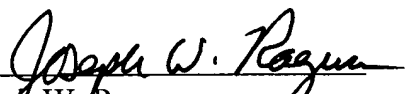
In fact, Powers is well aware of the use of tables to represent data and specifically teaches that its preferred embodiment is to represent the *entire* summary tree with tables. See col. 6, lines 17-20. Moreover, in relation to Figure 3, Powers states that the summary tree 28 is used to summarize and index the detail table 30. Col. 4, lines 67-68.

In view of the foregoing, Powers supplies no motivation to use tables in the claimed manner. Instead, Powers uses tables and summary trees in specified ways to accomplish the goals of the invention. There is no teaching or suggestion in Powers to replace only a portion of an assumed tree structure with an equivalent table. In Powers, the summary tree can be used to represent the entire detail table, or tables can be used to represent the entire summary tree. The only motivation for changing the relationship between tables and tree structures in Powers to be more like the technique recited in the claims of the present application would be to meet the limitations of the claims, which is improper. In any event, such a modification of Powers would improperly change its principle of operation, which uses tables and trees in a certain, defined manner.

For at least the foregoing reasons, all of the independent claims are believed to be clearly patentable over the cited references and reversal of the rejections is respectfully requested.

Dated: May 23, 2005

Respectfully submitted,

By 

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APPENDIX A

Claims Involved in the Appeal of Application Serial No. 09/770,017

Claims 1-6 (Cancelled)

7. (Previously Presented) The method according to claim 24,

wherein the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

8. (Original) The method according to claim 7, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

9. (Cancelled)

10. (Previously Presented) The apparatus according to claim 25, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

11. (Original) The apparatus according to claim 10, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

12. (Cancelled).

13. (Cancelled).

14. (Previously Presented) The search system according to claim 26, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

15. (Original) The search system according to claim 14, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

Claims 16-19 (Cancelled).

20. (Cancelled).

21. (Cancelled)

22. (Previously Presented) The storage medium according to claim 27, wherein

the condition (1) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a maximum search time Tmax_t calculated from the new data structure does not exceed a maximum search time Tmax calculated from the assumed tree structure; and

the condition (2) is further defined in that, when the selected sub-tree structure is replaced with the equivalent table to form a new data structure, a necessary amount of memory for the new data structure is smaller than that for the assumed tree structure.

23. (Original) The storage medium according to claim 22, wherein a decision on whether the condition (1) is satisfied is made depending on whether the following equation is satisfied:

$$N_D \leq N_L \times K, \text{ when } K = Te/Tn,$$

where N_D is the number of items of data included in the selected sub-tree structure, N_L is the number of levels of the selected node or lower in the assumed tree structure, Tn is search time per node, and Te is search time per entry in the equivalent table.

24. (Previously Presented) A computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search, comprising:

a) forming an assumed tree structure in which all the items of data are stored;

b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node;

c) forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form;

d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure,

wherein the predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

25. (Previously Presented) An apparatus for constructing a data structure in which items of data are stored for search, comprising:

a tree formation section for forming an assumed tree structure in which all the items of data are stored;

a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form, and determining the selected sub-tree structure when it satisfies one or more predetermined conditions; and

a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure,

wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

26. (Previously Presented) A search system comprising:

a tree formation section for forming an assumed tree structure in which all the items of data are stored;

a node selector for sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node, forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form, and determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

a data structure formation section for replacing the selected sub-tree structure satisfying the one or more predetermined conditions with the equivalent table corresponding to the selected sub-tree structure to construct the data structure that is stored in the memory,

wherein the predetermined conditions are that : 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

27. (Previously Presented) A storage medium storing a computer-readable program for constructing a data structure in which items of data are stored for search, the program comprising the steps of:

a) forming an assumed tree structure in which all the items of data are stored;

b) sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child node of the selected node;

c) forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form;

d) determining whether the selected sub-tree structure satisfies one or more predetermined conditions; and

e) when the selected sub-tree structure satisfies the one or more predetermined conditions, replacing the selected sub-tree structure with the equivalent table to construct the data structure,

wherein the predetermined conditions are that: 1) an amount of memory required to store a data structure including the equivalent table in place of the selected sub-tree structure is smaller than that required to store the assumed tree structure; and 2) search performance of the data structure is not lower than that of the assumed tree structure.

28. (Cancelled)

29. (Previously Presented) A computerized method for controlling storage and retrieval of data in a memory device by constructing a data structure in which items of data are stored for search, comprising:

forming an assumed tree structure in which all the items of data are stored;

sequentially selecting a node from the assumed tree structure to select a sub-tree structure including the selected node and any child nodes of the selected node;

forming an equivalent table storing at least a portion of the items of data included in the selected sub-tree structure in a table form; and

replacing the selected sub-tree structure with the equivalent table to construct the data structure, wherein the sub-tree structure is selected so as to satisfy the following conditions a) and b):

a) an amount of memory required to store the data structure is smaller than that required to store the assumed tree structure; and

b) search performance of the data structure is not lower than that of the assumed tree structure.

APPENDIX B – EVIDENCE

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C - RELATED PROCEEDINGS

No related proceedings are referenced in II. above, or copies of decisions in related proceedings are not provided, hence no Appendix is included.

PTO/SB/17 (12-04v2)
Approved for use through 7/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Effective on 12/08/2004.
Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL
For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 500.00

Complete if Known	
Application Number	09/770,017-Conf. #5189
Filing Date	January 25, 2001
First Named Inventor	Masayoshi Kobayashi
Examiner Name	H. Q. Pham
Art Unit	2172
Attorney Docket No.	K2291.0098

METHOD OF PAYMENT (check all that apply)

☐ Check ☒ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____

☐ Deposit Account Deposit Account Number: 50-2215 Deposit Account Name: Dickstein Shapiro Morin & Oshinsky LLP

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☐ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, **except for the filing fee**

☒ Charge any additional fee(s) or underpayment of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments

FEE CALCULATION

1. BASIC FILING, SEARCH, AND EXAMINATION FEES

	FILING FEES		SEARCH FEES		EXAMINATION FEES		
		Small Entity		Small Entity		Small Entity	
Application Type	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fee ($)	Fees Paid ($)
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Fee ($)	Small Entity Fee ($)
Each claim over 20 (including Reissues)	50	25
Each independent claim over 3 (including Reissues)	200	100
Multiple dependent claims	360	180

Total Claims		Extra Claims		Fee ($)		Fee Paid ($)
_____	- 20 =	_____	x	_____	=	_____

Indep. Claims		Extra Claims		Fee ($)		Fee Paid ($)
_____	- 3 =	_____	x	_____	=	_____

Multiple Dependent Claims	
Fee ($)	Fee Paid ($)
_____	_____

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets		Extra Sheets		Number of each additional 50 or fraction thereof		Fee ($)		Fee Paid ($)
_____	- 100 =	_____	/50	_____	(round **up** to a whole number) x	_____	=	_____

4. OTHER FEE(S)

	Fees Paid ($)
Non-English Specification, $130 fee (no small entity discount)	
Other (e.g., late filing surcharge): 1402 Filing a brief in support of an appeal	500.00

SUBMITTED BY

Signature	Joseph W. Ragusa	Registration No. (Attorney/Agent)	38,586	Telephone	(212) 896-5452
Name (Print/Type)	Joseph W. Ragusa			Date	May 23, 2005

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as Express Mail, Airbill No. EL 989766682 US, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Dated: May 23, 2005 Signature: Joseph W. Ragusa (Joseph W. Ragusa)